Recent records of the Hoary bat *Chalinolobus nigrogriseus* from New South Wales

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INTRODUCTION

The Hoary Bat *Chalinolobus nigrogriseus* is widely distributed in northern Australia, from the north of Western Australia through the north of the Northern Territory to northern Queensland and extending south to southeastern Queensland and far northeastern New South Wales (Allison 1983). While it is common in the northern section of its range and a number of records are known from southeastern Queensland (Van Dyck and Longmore 1991), prior to 1991 the only records of its occurrence in New South Wales were four specimens collected from the upper Clarence River in 1868 (Van Deusen and Koopman 1971).

We describe additional records of *C. nigrogriseus* from two sites in northern New South Wales obtained during recent fauna surveys, and discuss possible confusion with the similar Little Pied Bat *Chalinolobus picatus*.

BUNDJALUNG NATIONAL PARK

A total of five individuals, tentatively identified as either *C. nigrogriseus* or *C. picatus*, were captured between October 10 and 12, 1991, in mist nests placed around a water hole in disturbed woodland in the northern section of the Park (29°10′19″S, 153°23′49″E) during a fauna survey undertaken by the Northern Rivers Campus of the University of New England. The site was a disused quarry surrounded by wind sheared eucalypt woodland dominated by *Eucalyptus signata* to approximately 8 m with a heath understorey primarily comprised of *Banksia* spp. One adult male was retained as a voucher specimen (Australian Museum registration number M26598) and its identity was subsequently confirmed as *C. nigrogriseus* from examination of cranial and dental features. The forearm length of this individual was 36.7 mm. The remaining four animals were released and were all female, with forearm lengths of 35.5, 35.5, 36.0 and 37.0 mm.

RAMORNIE STATE FOREST

An adult female was collected on December 20, 1991, in Ramornie State Forest during a broadscale survey by the NSW National Parks and Wildlife Service of the vertebrate forest fauna of northeastern New South Wales. The individual was captured in a harp trap set for four nights across a small, slowly flowing branch of Main Creek, a tributary of the Clarence River, (29°43′01″S, 152°38′24″E), 25 km west of Grafton. This location, approximately 100 km south-west of the Bundjalung site, was in dry open eucalypt forest dominated by Spotted Gum *Eucalyptus maculata* Grey Box *E. moluccana*, and Northern Grey Ironbark *E. siderophloia*. This individual (Australian Museum M25437) weighed 6.0 gm and had a forearm length of 36.5 mm.

PREVIOUS NEW SOUTH WALES RECORDS

Four specimens, two of each sex, were lodged with the Museum of Victoria in 1868 by Wilcox with only the general location given as "Upper Clarence River" (J. Dixon and L. Frigo, pers. comm.). Three of these are held by the Museum of Victoria, Melbourne, the other is in the American Museum of Natural History, New York. Forearm lengths of these specimens (preserved in alcohol) given by Van Deusen and Koopman (1971) as 37.0 and 38.0 mm for the males, and 36.0 and 37.0 mm for females, are similar to measurements of the recent records.

COMPARISON OF THE RAMORNIE AND BUNDJALUNG SPECIMENS

The Ramornie specimen differed in pelage colour from the Bundjalung individuals in that both its dorsal and ventral fur was a uniform sooty black in colour, with the tips of the hairs of the dorsum minutely tipped with silver-grey, giving a frosted appearance most pronounced on the rump. However, the five individuals from Bundjalung also had a fringe of white hairs of varied width on either side of the body extending to the pubic area on the ventral surface, similar to *C. picatus*. The extent to which the white fur dominated the ventral pelage differed amongst the specimens captured, but was distinctive in each case. Both specimens had a notched first upper incisor.

DISCUSSION

In view of the lateral white fur of the Bundjalung individuals, it is possible that coastal populations of *C. nigrogriseus* could be confused with *C. picatus*, which is generally an inland species in New South Wales and southern Queensland (Hall and Richards 1979). Apart from two unconfirmed records near Brisbane (Van Dyck and Longmore 1991), *C. picatus* is not known from coastal areas. Confusion is also possible with the Large Pied Bat *Chalinolobus dwyeri*, which can be distinguished from both *C. nigrogriseus* and *C. picatus* by its larger size and much larger ears, which protrude well above the fur and *readily* overlap when pressed together above the head.

Criteria cited in the literature for distinguishing *C. nigrogriseus* from *C. picatus* include the larger average size of the former and its lack of white ventral fur on the flanks (Hall and Richards 1979). The first upper incisor is distinctly notched in *C. picatus* but it is usually unnotched in *C. nigrogriseus* (see Fig. 16 in Parnaby 1992) and the lobe of skin on the lower lip at the corner of the mouth is more prominently developed compared with that of *C. nigrogriseus* (see Fig. 15 in Parnaby 1992). In addition a number of differences exist in skull morphology between these species. In *C. nigrogriseus*, the interorbital width is broader relative to the intertemporal width and a weak sagittal crest is present which is totally absent in *C. picatus* (Ryan 1966).

White fur on the flanks, noted on all individuals from Bundjalung, has not been reported previously for *C. nigrogriseus*. However, we are confident that the specimen retained from Bundjalung is not referable to *C. picatus* according the current diagnosis of that species. The skull of the Bundjalung specimen differs markedly in shape, and is substantially larger than Little Pied Bats examined from inland New South Wales and held in the Australian Museum collection. However this specimen falls within the size range reported for *C. nigrogriseus* from eastern Australian by Van Deusen and Koopman (1971) and is similar in size, though slightly larger, than the previous specimens of *C. nigrogriseus* reported from the Clarence River region. For example, measurements for the Bundjalung animal for condylobasal length are 12.9 mm and zygomatic breadth, 9.3 mm compared to ranges of the four Clarence River specimens of 12.5–12.6 mm for condylobasal length and 9.1 mm (both specimens) for zygomatic breadth given by Van Deusen and Koopman (1971). Further, the first upper incisor of both the Ramornie and Bundjalung specimens is unnotched, as are all four Clarence specimens (as reported by Van Deusen and Koopman 1971).

We have not attempted a detailed examination of morphological variation in *C. nigrogriseus* or *C. picatus*. While it is clear that the specimen from Bundjalung differs from *C. picatus*, the significance of the presence of white fur flanks on animals from Bundjalung must await further investigation. We alert workers to potential confusion in identification of *Chalinolobus* from northern New South Wales and southern Queensland and encourage retention of voucher specimens of *C. nigrogriseus*, *C. picatus* and *C. dwyeri* from this region to assist further investigations of morphological variation, as these species are poorly represented in research collections.

Although a large number of sites in north-eastern New South Wales have been surveyed using harp traps over the past 12 months during the NSW National Parks and Wildlife Service's North East Forest Survey, most sites have been at mid to high elevation with relatively few in the low elevation dry forests characteristic of the Ramornie and Bundjalung areas. However, University of New England, Northern Rivers Campus, surveys have been more concentrated at low elevations but without producing additional records of *C. nigrogriseus* (P. Baverstock, pers. comm.). Perhaps the species normally forages above the reach of traps and nets but until much more extensive bat trapping has been undertaken of low elevation dry forests, particularly in the Clarence Valley, the status of *C. nigrogriseus* in New South Wales will remain uncertain.

From the complete absence of records over the past 130 years, particularly considering the recent proliferation of bat surveys, it appears that *C. nigrogriseus* is an uncommon to rare species with a very restricted distribution in New South Wales. Populations in the State might be isolated from those further to the north by the rainforests of the New South Wales-Queensland Border area. On current information this species clearly warrants its present classification as Endangered Fauna

(Part 2, Vulnerable and Rare, Schedule 12, NSW National Parks and Wildlife Act, Interim Revised List 1992).

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The Mulgara, *Dasycercus cristicauda* (Krefft, 1867): a new dasyurid record for New South Wales

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Owls have evolved to be adept at capturing small, nocturnal mammals. Their habit of regurgitating pellets composed of fur and bone from their victims has left a convenient record of the fauna in different parts of the world (e.g., Smith 1977; Smith and Cole 1989; Clark and Bunck 1991). Such pellet deposits have been found at Mootwingee National Park north-east of Broken Hill, New South Wales (Ellis, Wilson and Hamilton 1991). This note is a further report on remains from that deposit.

The two known deposits at Mootwingee are located in rock overhangs in the quartzite/sandstone ridges running through the park. The roosts overlook areas of deep sands, loams and clays supporting chenopod shrublands and Acacia woodlands. Both sites have cracks in the floor of the roosts allowing material to fall through a series of crevices to lower ledges and caves, resulting in an unstratified accumulation of material consisting of both intact pellets and loose material from disintegrating pellets. Hundreds of bones have accumulated at each of the sites indicating that the ledges were used as long-term roosts by the birds.

Amongst the material from the site at the western side of the reserve three dentaries (Australian Museum registrations M27821 to M27823) that belong to a medium-sized species of dasyurid have so far been found. Two similar dentaries have also been found in the deposit from the eastern side of the park (Australian Museum registration M23090). Based on the features described by Smith and Medlin (1982), the distribution of teeth in the dentary and the morphology of the molars (Fig. 1), these jaws have been assigned to the Mulgara, *Dasycercus cristicauda*, rather than to the Kowari, *Dasyuroides byrnei*.

The Mulgara has not been reported alive in New South Wales. It is regarded as being more northern and western in its distribution (Fig. 2), but its remains have also been found in the Flinders Ranges (Smith and Medlin 1982) and further to the south and west than shown in Figure 2 (Morton and Baynes 1985). Based on the bones reported in this note, *Dasycercus cristicauda* was once an element in the fauna of the arid parts of the north-west of New South Wales. In fact, Calaby (1971), when referring